

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

**AMENDMENTS TO THE CLAIMS**

The following is a complete listing of the claims, which replaces all previous versions and listings of the claims.

1. (Currently Amended) A method of flashing an image to a plurality of electrically erasable programmable read only memories (EEPROMs) across a communication bus, the method comprising:

compressing the image to create a compressed image;

broadcasting the compressed image to the plurality of EEPROMs ~~substantially simultaneously~~ across the communication bus ~~[[; and]]~~, wherein the method of broadcasting the compressed image comprises:

a. broadcasting the compressed image to a plurality of receivers across the communications means in a plurality of broadcast packets, without waiting for confirmation or response from the receivers;

b. querying at least one of the plurality of receivers for a list of missing packets from the compressed image; and

c. re-broadcasting the missing packets;

d. repeating steps b and c above until all receivers report no missing packets;

and flashing the image onto each of the plurality of EEPROMs.

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

2. (Original) The method of flashing a plurality of EEPROMs as defined in claim 1 wherein compressing the image further comprises:

creating an initial frequency table of an initial image placed on the plurality of EEPROMs; and

creating the compressed image using the initial frequency table.

3. (Original) The method of flashing a plurality of EEPROMs as defined in claim 2 further comprising refraining from broadcasting the initial frequency table along with the compressed image.

4. (Original) The method of flashing a plurality of EEPROMs as defined in claim 2 wherein creating the compressed image further comprises Huffman encoding.

5. (Cancelled)

6. (Original) The method of flashing a plurality of EEPROMs as defined in claim 1 wherein flashing the image onto each of the plurality of EEPROMs further comprises:

flashing the image onto each of the plurality of EEPROMs individually; and

refraining from flashing a remaining EEPROM if any of the plurality of EEPROMs fail to properly flash.

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

7. (Original) The method of flashing a plurality of EEPROMs as defined in claim 1 wherein broadcasting the compressed image further comprises broadcasting the compressed image across a low bandwidth communication bus.

8. (Currently Amended) A system comprising:

a communication bus;

a first computer system coupled to the communication bus;

a plurality of computer systems coupled to the first computer system across the communication bus, each of the plurality of computer systems having an electrically erasable programmable read only memory (EEPROM) device having an image thereon; and

wherein the first computer system is adapted to compress and simultaneously broadcast a new EEPROM image to each of the plurality of computer systems across the communication bus, the new EEPROM image to be de-compressed and placed in the EEPROM device of each of the plurality of computer systems.

9. (Cancelled)

10. (Currently Amended) The system as defined in [[claim 9]] claim 8 wherein the first computer system is adapted to Huffman encode the new EEPROM image prior to its transfer, and wherein the first computer system is further adapted to not send the frequency table used for Huffman encoding along with the new EEPROM image.

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

11. (Original) The system as defined in claim 10 wherein the first computer system uses a predefined frequency table to encode each new EEPROM image.
12. (Original) The system as defined in claim 10 wherein the plurality of computer systems each uses a predefined frequency table to decode each new EEPROM image prior to flashing.
13. (Original) The system as defined in claim 8 wherein each of the plurality of computer systems further comprises:
  - a microprocessor coupled to the EEPROM device; and
  - a random access memory array (RAM) coupled to the microprocessors;
  - wherein the microprocessor is adapted to receive the new EEPROM image broadcast across the communication bus and store the new EEPROM image in the RAM; and
  - wherein the microprocessor is further adapted to flash the new EEPROM image to the EEPROM after the entire new EEPROM image is stored in the RAM.
14. (Original) The system as defined in claim 13 wherein the first computer system is adapted to compress the new EEPROM image prior to its broadcast.
15. (Original) The system as defined in claim 14 wherein the microprocessor of each of the plurality of computer systems is further adapted to decompress the new EEPROM image prior to flashing that new EEPROM image to the EEPROM device.
16. (Cancelled)

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

17. (Cancelled)
18. (Cancelled)
19. (Original) The system as defined in claim 8 wherein the communication bus further comprises a low bandwidth communication bus.
20. (Currently Amended) A method of flashing a single image to a plurality of electrically erasable programmable read only memories (EEPROMs) across a communication bus, the method comprising:
- broadcasting sending the single image across the communication bus to each of the plurality of EEPROMs substantially simultaneously; and
- flashing the image onto each of the plurality of EEPROMs sequentially such that an image is verified to work on one system before other systems attempt to flash the image.
21. (Currently Amended) The method of flashing a plurality of EEPROMs as defined in claim 20 wherein ~~sending~~ broadcasting the single image to each of the plurality of EEPROMs ~~substantially simultaneously~~ further comprises broadcasting the single image across the communication bus being a low bandwidth communication bus.
22. (Currently Amended) The method of flashing a plurality of EEPROMs as defined in claim 20 further comprising, prior to the ~~sending~~ broadcasting step, compressing the single image to create a compressed single image.

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

23. (Currently Amended) The method of flashing a plurality of EEPROMs as defined in claim 22 wherein the ~~sending~~ broadcasting step further comprises ~~sending~~ broadcasting the compressed single image across the communication bus to each of the plurality of EEPROMs ~~substantially simultaneously~~.

24. (Currently Amended) The method of flashing a plurality of EEPROMs as defined in claim 23 wherein ~~sending~~ broadcasting the compressed single image to each of the plurality of EEPROMs ~~substantially simultaneously~~ further comprises broadcasting the compressed single image across the communication bus being a low bandwidth communication bus.

25. (Original) The method of flashing a plurality of EEPROMs as defined in claim 22 wherein compressing the single image further comprises:

creating an initial frequency table of an initial image placed on the plurality of EEPROMs; and

creating the compressed single image using the initial frequency table created for the initial image.

26. (Original) The method of flashing a plurality of EEPROMs as defined in claim 25 further comprising refraining from broadcasting the initial frequency table along with the compressed single image.

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

27. (Original) The method of flashing a plurality of EEPROMs as defined in claim 25 wherein creating the compressed single image further comprises Huffman encoding the single image using the initial frequency table.
28. (Original) The method of flashing a plurality of EEPROMs as defined in claim 20 wherein sending the single image further comprises:
- sending the single image in a plurality of broadcast packets;
  - querying each of the plurality of EEPROMs for a list of missing packets from the single image; and
  - broadcasting the missing packets from the single image.
29. (Original) The method of flashing a plurality of EEPROMs as defined in claim 20 wherein flashing the single image onto each of the plurality of EEPROMs further comprises:
- flashing the single image onto each of the plurality of EEPROMs individually; and
  - refraining from flashing a remaining EEPROM if any of the plurality of EEPROMs fail to properly flash.
30. (Original) The method of flashing a plurality of EEPROMs as defined in claim 20 wherein sending the single image further comprises sending the single image across a low bandwidth communication bus.

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

31. (Currently Amended) A rack mounted computer system comprising:
- a first chassis having a plurality of servers mounted therein;
  - a second chassis having a plurality of servers mounted therein;
  - a central power supply system coupled to the first and second chassis and supplying power thereto;
  - a first chassis communication module coupled to each server in the first chassis by way of a first communication bus;
  - a second chassis communication module coupled to each server in the second chassis by way of a second communication bus;
  - a third communication bus coupling the first and second chassis communication module;
  - wherein the first chassis communication module comprises:
    - a microcontroller coupled to the first communication bus and the third communication bus; and
    - an electrically erasable programmable read only memory (EEPROM) coupled to the microcontroller and adapted to store software images executed by the microcontroller;
  - wherein the second chassis communication module comprises:
    - a microcontroller coupled to the second communication bus and the third communication bus; and
    - an EEPROM coupled to the microcontroller adapted to store software images executed by the microcontroller;
  - wherein a server of the plurality of servers in one of the first and second chassis is adapted to broadcast simultaneously a new software image to be flashed to each EEPROM in each of the first and second chassis communication modules, wherein the method of



Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

broadcasting the image comprises:

- a. broadcasting the image to a plurality of receivers across the communications means in a plurality of broadcast packets, without waiting for confirmation or response from the receivers;
- b. querying at least one of the plurality of receivers for a list of missing packets from the image; and
- c. re-broadcasting the missing packets;
- d. repeating steps b and c above until all receivers report no missing packets.

32. (Original) The rack mounted computer system as defined in claim 31 wherein the server of the plurality of servers is configured to compress the new software image prior to broadcasting the new software image.

33. (Original) The rack mounted computer system as defined in claim 32 further comprising:  
said server of the plurality of servers is configured to use Huffman encoding to compress the new software image; and

wherein the first server of the plurality of servers is configured to not send a frequency table used for the Huffman encoding along with the new compressed software image.

34. (Original) The rack mounted computer system as defined in claim 33 wherein the server of the plurality of servers is further configured to perform the Huffman encoding using a frequency table that is not specifically indicative of the frequency of symbols in the new software image.

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

35. (Original) The rack mounted computer system as defined in claim 33 wherein each of the microcontrollers in each of the first and second chassis communication modules is adapted to use a predefined frequency table to decompress the new software image prior to flashing.

36. (Original) The rack mounted system as defined in claim 31 wherein the first communication bus is a low bandwidth communication bus.

37. (Cancelled)

38. (Original) The rack mounted system as defined in claim 31 wherein the second communication bus is a low bandwidth communication bus.

39. (Cancelled)

40. (Cancelled)

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

41. (Currently Amended) A system comprising:

a first computer means for sending a new software image;

a plurality of computer means for receiving the new software image, each of the plurality of computer means having an electrically erasable programmable read only memory (ROM) device requiring a software image;

a communication bus means coupling the first computer means and the plurality of computer means, the communication bus means for allowing the first computer means to send the new software images to the plurality of computer means; and

wherein the first computer means is adapted to simultaneously broadcast the new software image to each of the plurality of computer means across the communication means, the new software image to be placed in the EEPROM device of each of the plurality of computer means, wherein the method of broadcasting the image comprises:

a. broadcasting the image to a plurality of receivers across the communications means in a plurality of broadcast packets, without waiting for confirmation or response from the receivers;

b. querying at least one of the plurality of receivers for a list of missing packets from the image; and

c. re-broadcasting the missing packets;

d. repeating steps b and c above until all receivers report no missing packets..

42. (Original) The system as defined in claim 41 wherein the first computer means is adapted to compress the new software image prior to its broadcast across the communication means.

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

43. (Original) The system as defined in claim 42 wherein the first computer means is adapted to Huffman encode the new software image prior to its transfer, and wherein the first computer means is further adapted to not send the frequency table used for Huffman encoding along with the new software image.

44. (Original) The system as defined in claim 43 wherein the first computer means uses a predefined frequency table to encode each new software image.

45. (Original) The system as defined in claim 43 wherein the plurality of computer means each uses a predefined frequency table to decode each new software image prior to flashing.

46. (Original) The system as defined in claim 41 wherein each of the plurality of computer means further comprises:

a digital computing means for executing software programs, the digital computing means coupled to the EEPROM device; and

a memory means for temporarily storing data and software programs, the memory means coupled to the digital computing means;

wherein the digital computer means is adapted to receive the new software image broadcast across the communication means and store the new software image in the memory means; and

wherein the digital computing means is further adapted to flash the new software image to the EEPROM after the entire new software image is stored in the memory means.

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

47. (Original) The system as defined in claim 46 wherein the first computer means is adapted to compress the new software image prior to its broadcast.

48. (Original) The system as defined in claim 47 wherein the digital computing means of each of the plurality of computer means is further adapted to decompress the new software image prior to flashing that new software image to the EEPROM device.

49. (Cancelled)

50. (Cancelled)

51. (Cancelled)

52. (Cancelled)

Serial No. 09/966,650  
Amendment and Response to Office Action  
Mailed 4 MAY 2005

53. (New) A method of flashing an image to a plurality of electrically erasable programmable read only memories (EEPROMs) across a communication bus, the method comprising:

compressing the image to create a compressed image; wherein compressing the image comprises:

compressing data using Huffman encoding where a frequency table is computed from data similar to that being transferred, which is available to both the sender and receiver of the transmission; whereby compression is less than ideal, but a reduced amount of data is required to be transferred; and

broadcasting the compressed image to the plurality of EEPROMs across the communication bus ; and

flashing the image onto each of the plurality of EEPROMs.

54. (New) The method described in Claim 53 wherein the frequency table is calculated from the data to be replaced on the plurality of EEPROMs.

55. (New) The method described in Claim 53 wherein the frequency table is calculated in advance and stored on one or more of the systems prior to the transfer.